Claims

[c1]   A method for building an as-needed computer generated model, comprising the steps of:

storing a max-case model file relating to a max-case design model, wherein said max-case design model includes plurality of model sub-components;

extracting viewer-readable files for each of said plurality of model sub-components;

generating a max-case design script including retrieval information for each of said plurality of model sub-components;

receiving a user selection of particular as-needed model sub-components;

generating an as-needed design script including retrieval information for each of the as-needed model sub-components;

retrieving, in a model viewing application, the viewer-readable files for each of the as-needed model sub-components;

building the as-needed model from the retrieved viewer-readable files; and

displaying the as-needed model to the user.

[c2]   The method of claim 1, wherein the step of generating a max-case design script further comprises the step of extracting location information for each of the model sub-components.

[c3]   The method of claim 1, further comprising the step of storing said viewer-readable files in at least one computer-readable medium.

[c4]   The method of claim 1, further comprising the step of storing said user selection of particular as-needed model sub-components in at least one computer-readable medium.

[c5]   The method of claim 1, wherein at least the step of: extracting viewer-readable files for each of said plurality of model sub-components; receiving a user selection of particular as-needed model sub-components; and displaying the as-needed model to the user are completed at remote locations to each other.

[c6]   The method of claim 5 , wherein the remote locations are connected by a computer network.

[c7]   The method of claim 1 , further comprising the step of storing said viewer-readable files a VRML file format.

[c8]   The method of claim 1 , further comprising the step of storing said viewer-readable files in a TIFF file format.

[c9]   The method of claim 1 , further comprising the step of storing said max-case design script and said as-needed design script in an ASCII file format.

[c10]   The method of claim 1 , further comprising the steps of:
         extracting spatial orientation information related to the three dimensional orientation of each of the model sub-components and including the spatial orientation information in the max-case design script;
         receiving, from the user, sub-component placement and orientation information for each as-needed model sub-component; and
         including within the as-needed design script, the received sub-component placement and orientation information.

[c11]   The method of claim 10 , wherein said spatial orientation information includes six degrees of freedom.

[c12]   The method of claim 10 , wherein said spatial orientation information includes coordinates for an angle of rotation about each of the x, y, and z axes, relative to a pre-established coordinate axes, and an offset in each of the x, y, and z directions relative to a predetermined model center point.

[c13]
         A method for building and displaying an as-needed computer generated model, comprising the steps of:
         receiving a selection of a plurality of model sub-components that, when assembled together, form the as-needed computer generated model;
         executing an as-needed script readable by a model viewing software application and related to the selected plurality of model sub-components,

wherein the as-needed script includes retrieval information for each of the plurality of model sub-components;

retrieving, based upon said as-needed script, a plurality of viewer-readable files corresponding to the selected plurality of model sub-components;

building the as-needed computer generated model from the plurality of retrieved viewer-readable files in a model viewing software application; and

displaying the as-needed computer generated model in the model viewing software application.

[cl4]   A system for building an as-needed computer generated model, comprising:

a multi-dimensional modeling tool for generating and storing a max-case model file relating to a max-case design model, wherein said max-case design model includes plurality of model sub-components;

a sub-component extraction utility electronically connected to said multi-dimensional modeling tool for extracting viewer-readable files for each of said plurality of model sub-components;

a viewer utility electronically connected to said sub-component extraction utility for generating a max-case design script that includes at least retrieval information for each of said plurality of model sub-components;

a product configurator application electronically connected to said viewer utility for receiving a user selection of particular as-needed model sub-components; and

a viewer application electronically connected to said product configurator application and said sub-component extraction utility for generating an as-needed design script including retrieval information for each of the as-needed model sub-components, retrieving, the viewer-readable files for each of the as-needed model sub-components, building the as-needed model from the retrieved viewer-readable files; and displaying the as-needed model to the user.

[cl5]   The system of claim 14 wherein said viewer utility extracts location information for each of the model sub-components.

[c16]   The system of claim 14 , wherein said sub-component extraction utility stores said viewer-readable files in at least one computer-readable medium.

[c17]   The system of claim 14 , wherein said product configurator application stores said user selection of particular as-needed model sub-components in at least one computer-readable medium.

[c18]   The system of claim 14 , wherein at least said multi-dimensional modeling tool, said sub-component extraction utility, said product configurator application, and said viewer application are located at remote locations to each other.

[c19]   The system of claim 18 , wherein the remote locations are connected by a computer network.

[c20]   The system of claim 14 , wherein said viewer-readable files are stored in a VRML file format.

[c21]   The system of claim 14 , wherein said viewer-readable files are stored in a TIFF file format.

[c22]   The system of claim 14 , wherein said max-case design script and said as-needed design script are stored in an ASCII file format.

[c23]   The system of claim 14 , wherein:
said sub-component extraction utility further extracts spatial orientation information related to the three dimensional orientation of each of the model sub-components;
said viewer utility further includes the spatial orientation information in the max-case design script;
said product configurator application further receives, from the user, sub-component placement and orientation information for each as-needed model sub-component; and
said viewer application further includes, within the as-needed design script, the received sub-component placement and orientation information.

[c24]   The system of claim 23 , wherein said spatial orientation information includes six degrees of freedom.

[c25]   The system of claim 23 , wherein said spatial orientation information includes coordinates for an angle of rotation about each of the x, y, and z axes, relative to a pre-established coordinate axes, and an offset in each of the x, y, and z directions relative to a predetermined model center point.

[c26]   A system for building and displaying an as-needed computer generated model, comprising:

a product configurator application for receiving a selection of a plurality of model sub-components that, when assembled together, form the as-needed computer generated model;

a viewer application for executing an as-needed script related to the selected plurality of model sub-components,

wherein the as-needed script includes retrieval information for each of the plurality of model sub-components;

said viewer application further retrieving, based upon said as-needed script, a plurality of viewer-readable files corresponding to the selected plurality of model sub-components;

said viewer application further building the as-needed computer generated model from the plurality of retrieved viewer-readable files in a model viewing software application; and

said viewer application further displaying the as-needed computer generated model in the model viewing software application.